

CLAIMS

1. A method, comprising:

obtaining information regarding first partition elements related to a first partitioning of channel resource elements carrying in downlink a configurable first control channel associated with a data channel,

determining a number of second partition elements related to a second partitioning of channel resource elements per first partition element,

determining for at least one second partition element a second-partition element index based on information regarding the first partition elements and the determined number,

determining for at least one third partition element related to a third partitioning of channel resource elements, a third-partition element index,

wherein the second partitioning is related to the allocation of channel resources of the first control channel, and

wherein the third partitioning is related to allocating channel resources of a second control channel.

2. The method according to claim 1, further comprising

receiving a data packet transmitted on the data channel, and

providing feedback information in uplink direction on the second control channel about successful or unsuccessful reception of the data packet.

3. The method according to claim 1 or 2,

wherein the first partitioning is related to allocating channel resources of the data channel.

4. The method according to any one of claims 1 to 3,

wherein at least one of the second-partition element index and information regarding first partition elements is unique in a cell.

5. The method according to any one of claims 1 to 3,

wherein at least one of the second-partition element index and information regarding first partition elements is unique per user equipment.

6. The method according to any one of claims 1 to 5, wherein each second-partition element index is mapped to one or more third-partition element indexes.

7. The method according to any one of claims 1 to 6, wherein determining the number of second-partition elements comprises deriving the number from a subframe type.

8. The method according to any one claims 1 to 7, wherein the second-partition element indices are determined so as to form a continuous set of indices.

9. The method according to any one of claims 1 to 8, wherein the second-partition element indices are determined starting from the second-partition element on the first partition element with the lowest index.

10. The method according to any one of claims 1 to 8, wherein the second-partition element indices are determined starting from the second-partition element on the first partition element with the highest index.

11. The method according to any one of claims 1 to 10, wherein determining at least one third-partition element index comprises one-to-one mapping between the second-partition element index and the third-partition element index starting from the lowest second-partition element index.

12. The method according to any one of claims 1 to 10, wherein determining at least one third-partition element index comprises many-to-one mapping between the second-partition element index and the third-partition element index.

13. The method according to claim 12, further comprising

a collision avoidance mechanism.

14. The method according to claim 13, wherein

the collision avoidance mechanism comprises including a specific field modifying the implicit uplink channel resource allocation.

15. The method according to claim 13, wherein

the collision avoidance mechanism comprises first control channel scheduling including selecting at least one second-partition element used for the first control channel.

16. The method according to claim 12, wherein

the many-to-one mapping comprises one-to-one mapping between the second-partition element index and the third-partition element index for the second-partition elements contained on one first-partition element.

17. The method according to any one of claims 1 to 16, wherein

the method is executed by a user equipment, wherein obtaining information regarding first partition elements includes receiving the information from a base station.

18. The method according to claim 17, further comprising

receiving an offset parameter indicating the first second-partition element index from a base station.

19. The method according to claim 17, wherein

the information is included in system information and received via broadcast.

20. The method according to claim 17, wherein

the information is received via a broadcast channel or enhanced broadcast channel.

21. The method according to claim 20, wherein

the information is included in a master information block or system information block.

22. The method according to claim 17, wherein

the information is received via dedicated higher layer radio resource control signaling.

23. The method according to any one of claims 1 to 16, wherein

the method is executed by a base station.

24. The method according to claim 23, further comprising

defining an offset parameter indicating the first second-partition element index.

25. The method according to claim 24, further comprising:

transmitting the offset parameter to a user equipment.

26. An apparatus comprising

a receiver/transmitter configured to communicate with at least another apparatus,

a memory configured to store computer program code, and

a processor configured to cause the apparatus to perform:

obtaining information regarding first partition elements related to a first partitioning of channel resource elements carrying in downlink a configurable first control channel associated with a data channel,

determining a number of second partition elements related to a second partitioning of channel resource elements per first partition element,

determining for at least one second partition element a second-partition element index based on information regarding the first partition elements and the determined number,

determining for at least one third partition element related to a third partitioning of channel resource elements, a third-partition element index,

wherein the second partitioning is related to the allocation of channel resources of the first control channel, and

wherein the third partitioning is related to allocating channel resources of a second control channel.

27. The apparatus according to claim 26, wherein the processor is further configured to cause the apparatus to perform

receiving a data packet transmitted on the data channel, and
providing feedback information in uplink direction on the second control channel about successful or unsuccessful reception of the data packet.

28. The apparatus according to claim 26 or 27,

wherein the first partitioning is related to allocating channel resources of the data channel.

29. The apparatus according to any one of claims 26 to 28,

wherein at least one of the second-partition element index and information regarding first partition elements is unique in a cell.

30. The apparatus according to any one of claims 26 to 29,

wherein at least one of the second-partition element index and information regarding first partition elements is unique per user equipment.

31. The apparatus according to any one of claims 26 to 30,

wherein each second-partition element index is mapped to one or more third-partition element indexes.

32. The apparatus according to any one of claims 26 to 31, wherein

determining the number of second-partition elements comprises deriving the number from a subframe type.

33. The apparatus according to any one claims 26 to 32, wherein

the second-partition element indices are determined so as to form a continuous set of indices.

34. The method according to any one of claims 26 to 33, wherein

the second-partition element indices are determined starting from the second-partition element on the first partition element with the lowest index.

35. The apparatus according to any one of claims 26 to 33, wherein the second-partition element indices are determined starting from the second-partition element on the first partition element with the highest index.

36. The apparatus according to any one of claims 26 to 35, wherein determining at least one third-partition element index comprises one-to-one mapping between the second-partition element index and the third-partition element index starting from the lowest second-partition element index.

37. The apparatus according to any one of claims 26 to 35, wherein determining at least one third-partition element index comprises many-to-one mapping between the second-partition element index and the third-partition element index.

38. The apparatus according to claim 37, further comprising a collision avoidance mechanism.

39. The apparatus according to claim 38, wherein the collision avoidance mechanism comprises including a specific field modifying the implicit uplink channel resource allocation.

40. The apparatus according to claim 38, wherein the collision avoidance mechanism comprises first control channel scheduling including selecting at least one second-partition element used for the first control channel.

41. The apparatus according to claim 37, wherein the many-to-one mapping comprises one-to-one mapping between the second-partition element index and the third-partition element index for the second-partition elements contained on one first-partition element.

42. The apparatus according to any one of claims 26 to 41, wherein the apparatus is a user equipment and obtaining information regarding first partition elements includes receiving the information from a base station.
43. The apparatus according to claim 42, wherein the processor is further configured to cause the apparatus to perform receiving an offset parameter indicating the first second-partition element index from a base station.
44. The apparatus according to claim 43, wherein the information is included in system information and received via broadcast.
45. The apparatus according to claim 43, wherein the information is received via a broadcast channel or enhanced broadcast channel.
46. The apparatus according to claim 45, wherein the information is included in a master information block or system information block.
47. The apparatus according to claim 46, wherein the information is received via dedicated higher layer radio resource control signaling.
48. The apparatus according to any one of claims 26 to 41, wherein the apparatus is a base station.
49. The apparatus according to claim 48, wherein the processor is further configured to cause the apparatus to perform defining an offset parameter indicating the first second-partition element index.

50. The apparatus according to claim 49, wherein the processor is further configured to cause the apparatus to perform transmitting the offset parameter to a user equipment.

51. A computer program product including a program for a processing device, comprising software code portions for performing the steps of any one of claims 1 to 25 when the program is run on the processing device.

52. The computer program product according to claim 51, wherein the computer program product comprises a computer-readable medium on which the software code portions are stored.

53. The computer program product according to claim 51, wherein the program is directly loadable into an internal memory of the processing device.

CLAIMS

1. A method, comprising:

obtaining information regarding first partition elements related to a first partitioning of channel resource elements carrying in downlink a configurable first control channel associated with a data channel,

determining a number of second partition elements related to a second partitioning of channel resource elements per first partition element,

determining for at least one second partition element a second-partition element index based on information regarding the first partition elements and the determined number,

determining at least one third partition element related to a third partitioning of channel resource elements, associated with a third-partition element index,

wherein the second partitioning is related to the allocation of channel resources of the first control channel, and

wherein the third partitioning is related to allocating channel resources of a second control channel.

2. The method according to claim 1, further comprising

receiving on the first control channel control information for allocating channel resources to the data channel,

receiving a data packet transmitted on the data channel, and

providing feedback information in uplink direction on the second control channel about successful or unsuccessful reception of the data packet,

wherein the feedback information is provided on the at least one third partition element, and

wherein the second partition element index is used in determining the third-partition element index.

3. The method according to claim 1 or 2,

wherein the first partitioning is related to allocating channel resources of the data channel.

4. The method according to claim 1,
wherein at least one of the second-partition element index and information regarding first partition elements is unique in a cell.
5. The method according to claim 1,
wherein at least one of the second-partition element index and information regarding first partition elements is unique per user equipment.
6. The method according to claim 1,
wherein each second-partition element index is mapped to one or more third-partition element indexes.
7. The method according to claim 1, wherein
determining the number of second-partition elements comprises deriving the number from a subframe type.
8. The method according to claim 1, wherein
the second-partition element indices are determined so as to form a continuous set of indices.
9. The method according to claim 1, wherein
the second-partition element indices are determined starting from the second-partition element on the first partition element with the lowest index.
10. The method according to claim 1, wherein
the second-partition element indices are determined starting from the second-partition element on the first partition element with the highest index.
11. The method according to claim 1, wherein
determining at least one third-partition element index comprises one-to-one mapping between the second-partition element index and the third-partition element index starting from the lowest second-partition element index.
12. The method according to claim 1, wherein

determining at least one third-partition element index comprises many-to-one mapping between the second-partition element index and the third-partition element index.

13. The method according to claim 1, further comprising a collision avoidance mechanism, wherein

the collision avoidance mechanism comprises including a specific field modifying the implicit uplink channel resource allocation.

14. The method according to claim 1, further comprising a collision avoidance mechanism, wherein

the collision avoidance mechanism comprises first control channel scheduling including selecting at least one second-partition element used for the first control channel.

15. The method according to claim 12, wherein

the many-to-one mapping comprises one-to-one mapping between the second-partition element index and the third-partition element index for the second-partition elements contained on one first-partition element.

16. The method according to claim 1, wherein

the method is executed by a user equipment, wherein obtaining information regarding first partition elements includes receiving the information from a base station.

17. The method according to claim 16, further comprising

receiving an offset parameter indicating the first second-partition element index from a base station.

18. An apparatus comprising

a receiver/transmitter configured to communicate with at least another apparatus,

a memory configured to store computer program code, and

a processor configured to cause the apparatus to perform:

obtaining information regarding first partition elements related to a first partitioning of channel resource elements carrying in downlink a configurable first control channel associated with a data channel,

determining a number of second partition elements related to a second partitioning of channel resource elements per first partition element,

determining for at least one second partition element a second-partition element index based on information regarding the first partition elements and the determined number,

determining at least one third partition element related to a third partitioning of channel resource elements, associated with a third-partition element index,

wherein the second partitioning is related to the allocation of channel resources of the first control channel, and

wherein the third partitioning is related to allocating channel resources of a second control channel.

19. A computer program product including a program for a processing device, comprising software code portions for performing the steps of claim 1 when the program is run on the processing device.